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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,725	03/04/2004	Daisuke Maruyama	108131-00004	5311

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EXAMINER	
CHARIOUI, MOHAMED	
ART UNIT	**PAPER NUMBER**
2857	

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/791,725	MARUYAMA, DAISUKE	
	Examiner	Art Unit	
	Mohamed Charioui	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-22,31-34,37-42,45-50,53 and 54* is/are allowed.

6)☐ Claim(s) *23-30,35,36,43,44,51 and 52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/4/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 23-30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter and the claimed invention lacks patentable utility. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam , 33. F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). See MPEP 2106, and the Examination Guidelines for Computer-Related Inventions ("Guidelines") referenced therein, which covers computer implemented inventions and the manner in which they may be claimed and find statutory basis. Since these claims are non-statutory they are not further treated on the merits.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 35, 36, 43, 44, 51 and 52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear from these claims whether the limitation "a fixed state having a change "from 0 to 0" or "from 1 to 1" is allocated as said state showing the circuit operating mode at said path cut point, thereby fixing said state." further limits "by giving control values of a gate at a sending time and a receiving time, a state showing a circuit operating mode is fixed" or "by giving an uncontrol value of the gate to all gate inputs at the sending time and the receiving time". Also, it is not clear from the claim whether "a state showing a circuit operating mode is fixed" is a control value or not and how these limitations are correlated to detect a delay failure. Therefore, these claims are considered indefinite.

Allowable Subject Matter

3. **Claims 1-22, 31-34, 37-42, 45-50, 53 and 54** are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 1-10, none of the prior art of record teaches or suggests a narrowing step wherein an area including a sending FF group corresponding to failure presumption points, a receiving FF, and further, a preparation FF group that is one-stage precedent to said sending FF group is specified as a processing target circuit by a narrowing processing unit and an allocation of a don't care X is permitted as a state for activating the propagating path of the failure, and in the failure propagating step, after the change in network, the state is transferred from the don't care X to an uncontrol value, thereby activating the propagating path of the failure, in combination with the rest of the claim limitations.

Regarding claims 11-21, 31 and 32, none of the prior art of record teaches or suggests a narrowing step wherein an area including a sending FF group corresponding to failure presumption points, a receiving FF, and further, a preparation FF group that is one-stage precedent to said sending FF group is specified as a processing target circuit by a narrowing processing unit and an allocation of a don't care X is permitted as a state for activating the propagating path of the failure, and in the failure propagating step, after the change in network, the state is transferred from the don't care X to an uncontrol value, thereby activating the propagating path of the failure, in combination with the rest of the claim limitations.

Regarding claim 22, none of the prior art of record teaches or suggests a narrowing unit which specifies an area including a sending FF group corresponding to failure presumption points, a receiving FF, and further, a preparation FF group that is one-stage precedent to said sending FF group as a processing target circuit, and the failure propagating state setting unit permits an allocation of a don't care X as a state for activating the propagating path of the failure, and said automatic test pattern generation control unit transfers the state from the don't care X to an uncontrol value after the change in network, thereby activating the propagating path of the failure, in combination with the rest of the claim limitations.

Regarding claims 33, 41 and 49, none of the prior art of record teaches or suggests that if a clock-off has been allocated to a sending FF at a sending time, an uncontrol value (u) showing that the failure excitation is impossible is conditional-implicated in a failure value corresponding to an output of the sending FF at a receiving

time, and when the uncontrol value (u) has been allocated to the failure presumption points, it is determined that the failure excitation is impossible, and the failure presumption points are excluded from targets of the delay failure, in combination with the rest of the claim limitations.

Regarding claims 34, 42 and 50, none of the prior art of record teaches or suggests that among the failures which are presumed on a network from failure presumption points, on the network, where the failure which failed in the failure propagation has been presumed to a branch input in a fan-out free area where a circuit having a branch output does not exist, the failure in which an inverting relation of a failure value is equal to that of the failed failure and the failure value is equal to a control value of a gate is extracted, thereby excluding the failure presumed on the network as an undetectable failure, in combination with the rest of the claim limitations.

Regarding claims 37, 38, 45, 46, 53 and 54, none of the prior art of record teaches or suggests a narrowing range is marked by back traces of two stages from a failure presumption point of a circuit to generate a test pattern for detecting a delay failure to a sending FF group via a receiving FF group and from the sending FF group to a preparation FF group, and if both states showing a circuit operating mode at the sending time and the receiving time of a network are not a don't care value X, execution of the back trace after the network is stopped.

Regarding claims 39, 40, 47 and 48, none of the prior art of record teaches or suggests a failure presumption points of a processing target circuit including a sending FF group, a receiving FF group, and further, a preparation FF group that is one-stage

precedent to the sending FF group; and a test pattern constructed by a set of input values to the sending FF group and output values of the receiving FF group as expectation values against the input values is generated, wherein, further, when the state showing the circuit operating mode for activating the propagating path of the failure after the network change is a state which is shifted to an uncontrol value from a don't care value X, the path activating unit activates the propagating path of the failure by permitting the don't care value X, in combination with the rest of the claim limitations.

Prior art

4. The prior art made record and not relied upon is considered pertinent to applicant's disclosure:

Stroud et al. ['150] disclose method for testing field programmable gate arrays.

Bencivenga ['145] discloses method for testing path delay faults in sequential logic circuits.

Ohta et al. ['301] disclose functional block for integrated circuit, semiconductor integrated circuit, inspection method for semiconductor integrated circuit, and designing method therefor.

Rearick et al. ['139] method and apparatus for measuring the quality of delay test apparatus.

Nishioka et al. ['627] disclose fault simulator for verifying reliability of test pattern.

Gupte et al. ['352] disclose increasing possible test patterns which can be used with sequential scanning techniques to perform speed analysis.

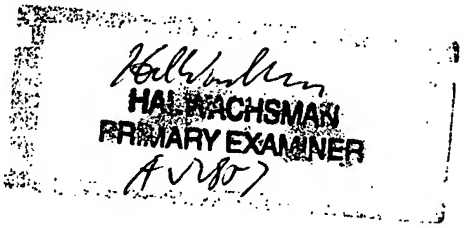
Wang et al. ['181] disclose method and apparatus for unifying self-test with scan-test during prototype debug and production test.

Contact information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohamed Charioui whose telephone number is (571) 272-2213. The examiner can normally be reached Monday through Friday, from 9 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mohamed Charioui

6/17/05